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### 1 Decentralized storage systems: Farsite: federated, available, and reliable storage for an incompletely trusted environment

Atul Adya, William J. Bolosky, Miguel Castro, Gerald Cermak, Ronnie Chaiken, John R. Douceur, Jon Howell, Jacob R. Lorch, Marvin Theimer, Roger P. Wattenhofer  
December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue SI

Full text available: pdf(1.87 MB)

Additional Information: [full citation](#), [abstract](#), [references](#)

Farsite is a secure, scalable file system that logically functions as a centralized file server but is physically distributed among a set of untrusted computers. Farsite provides file availability and reliability through randomized replicated storage; it ensures the secrecy of file contents with cryptographic techniques; it maintains the integrity of file and directory data with a Byzantine-fault-tolerant protocol; it is designed to be scalable by using a distributed hint mechanism and delegatio ...

### 2 Decentralized storage systems: Ivy: a read/write peer-to-peer file system

Athicha Muthitacharoen, Robert Morris, Thomer M. Gil, Benjie Chen  
December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue SI

Full text available: pdf(1.65 MB)

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Ivy is a multi-user read/write peer-to-peer file system. Ivy has no centralized or dedicated components, and it provides useful integrity properties without requiring users to fully trust either the underlying peer-to-peer storage system or the other users of the file system. An Ivy file system consists solely of a set of logs, one log per participant. Ivy stores its logs in the DHash distributed hash table. Each participant finds data by consulting all logs, but performs modifications by appendi ...

### 3 Decentralized storage systems: Taming aggressive replication in the Pangaea wide-area file system

Yasushi Saito, Christos Karamanolis, Magnus Karlsson, Mallik Mahalingam  
December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue SI

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Pangaea is a wide-area file system that supports data sharing among a community of widely distributed users. It is built on a symmetrically decentralized infrastructure that consists of commodity computers provided by the end users. Computers act autonomously to serve data to their local users. When possible, they exchange data with nearby peers to improve the system's overall performance, availability, and network economy. This approach is realized by aggressively creating a replica of a file w ...

#### 4 OceanStore: an architecture for global-scale persistent storage

John Kubiawicz, David Bindel, Yan Chen, Steven Czerwinski, Patrick Eaton, Dennis Geels, Ramakrishan Gummadi, Sean Rhea, Hakim Weatherspoon, Westley Weimer, Chris Wells, Ben Zhao

November 2000 **ACM SIGPLAN Notices**, Volume 35 Issue 11

Full text available:  [pdf\(1.47 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

OceanStore is a utility infrastructure designed to span the globe and provide continuous access to persistent information. Since this infrastructure is comprised of untrusted servers, data is protected through redundancy and cryptographic techniques. To improve performance, data is allowed to be cached anywhere, anytime. Additionally, monitoring of usage patterns allows adaptation to regional outages and denial of service attacks; monitoring also enhances performance through pro-active movement ...

#### 5 OceanStore: an architecture for global-scale persistent storage

John Kubiawicz, David Bindel, Yan Chen, Steven Czerwinski, Patrick Eaton, Dennis Geels, Ramakrishna Gummadi, Sean Rhea, Hakim Weatherspoon, Chris Wells, Ben Zhao

November 2000 **Proceedings of the ninth international conference on Architectural support for programming languages and operating systems**, Volume 28 , 34 Issue 5 , 5

Full text available:  [pdf\(166.53 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

OceanStore is a utility infrastructure designed to span the globe and provide continuous access to persistent information. Since this infrastructure is comprised of untrusted servers, data is protected through redundancy and cryptographic techniques. To improve performance, data is allowed to be cached anywhere, anytime. Additionally, monitoring of usage patterns allows adaptation to regional outages and denial of service attacks; monitoring also enhances performance through pro-active movement ...

#### 6 Session 3: Building secure file systems out of byzantine storage

David Mazières, Dennis Shasha

July 2002 **Proceedings of the twenty-first annual symposium on Principles of distributed computing**

Full text available:  [pdf\(1.02 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

This paper shows how to implement a trusted network file system on an untrusted server. While cryptographic storage techniques exist that allow users to keep data secret from untrusted servers, this work concentrates on the detection of tampering attacks and stale data. Ideally, users of an untrusted storage server would immediately and unconditionally notice any misbehavior on the part of the server. This ideal is unfortunately not achievable. However, we define a notion of data integrity calle ...

#### 7 Technical and social components of peer-to-peer computing: Extracting guarantees from chaos

John Kubiawicz

February 2003 **Communications of the ACM**, Volume 46 Issue 2

Full text available:  [pdf\(347.56 KB\)](#)  [html\(35.62 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The P2P revolution promises freedom from boundaries, censorship, and centralized control. P2P proponents claim the vast untapped resource of personal computers owned by ordinary people can be combined together to build something greater and more reliable than the sum of its parts.



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Thomas E. Anderson, Michael D. Dahlin, Jeanna M. Neefe, David A. Patterson, Drew S. Roselli, Randolph Y. Wang

 February 1996 **ACM Transactions on Computer Systems (TOCS)**, Volume 14 Issue 1

Full text available: pdf(2.69 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We propose a new paradigm for network file system design: serverless network file systems. While traditional network file systems rely on a central server machine, a serverless system utilizes workstations cooperating as peers to provide all file system services. Any machine in the system can store, cache, or control any block of data. Our approach uses this location independence, in combination with fast local area networks, to provide better performance and scalability th ...

**Keywords:** RAID, log cleaning, log structured, log-based striping, logging, redundant data storage, scalable performance

### 2 Serverless network file systems

T. E. Anderson, M. D. Dahlin, J. M. Neefe, D. A. Patterson, D. S. Roselli, R. Y. Wang

 December 1995 **ACM SIGOPS Operating Systems Review , Proceedings of the fifteenth ACM symposium on Operating systems principles**, Volume 29 Issue 5

Full text available: pdf(2.48 MB)

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### 3 Improving the performance of log-structured file systems with adaptive methods

Jeanna Neefe Matthews, Drew Roselli, Adam M. Costello, Randolph Y. Wang, Thomas E. Anderson

 October 1997 **ACM SIGOPS Operating Systems Review , Proceedings of the sixteenth ACM symposium on Operating systems principles**, Volume 31 Issue 5


Full text available: pdf(2.18 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

### 4 Implementing cooperative prefetching and caching in a globally-managed memory system

Geoffrey M. Voelker, Eric J. Anderson, Tracy Kimbrel, Michael J. Feeley, Jeffrey S. Chase, Anna R. Karlin, Henry M. Levy

June 1998 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1998 ACM SIGMETRICS joint international conference on Measurement and modeling of computer systems**, Volume 26 Issue 1

Full text available:  [pdf\(1.66 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper presents *cooperative prefetching and caching* --- the use of network-wide global resources (memories, CPUs, and disks) to support prefetching and caching in the presence of hints of future demands. Cooperative prefetching and caching effectively unites disk-latency reduction techniques from three lines of research: prefetching algorithms, cluster-wide memory management, and parallel I/O. When used together, these techniques greatly increase the power of prefetching relative to a ...

**5 Modeling communication pipeline latency**

Randolph Y. Wang, Arvind Krishnamurthy, Richard P. Martin, Thomas E. Anderson, David E. Culler

June 1998 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1998 ACM SIGMETRICS joint international conference on Measurement and modeling of computer systems**, Volume 26 Issue 1

Full text available:  [pdf\(1.48 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper, we study how to minimize the latency of a message through a network that consists of a number of store-and-forward stages. This research is especially relevant for today's low overhead communication systems that employ dedicated processing elements for protocol processing. We develop an abstract pipeline model that reveals a crucial performance tradeoff involving the effects of the overhead of the bottleneck stage and the bandwidth of the remaining stages. We exploit this tradeoff ...

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### 2 CoStore: a serverless distributed file system utilizing disk space on workstation clusters

*Yong Chen; Ni, L.M.; Mingyao Yang; Mohapatra, P.;*  
Performance, Computing, and Communications Conference, 2002. 21st IEEE International , 3-5 April 2002  
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### 3 Large-scale simulation of replica placement algorithms for a serverless distributed file system

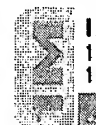
*Douceur, J.R.; Wattenhofer, R.P.;*  
Modeling, Analysis and Simulation of Computer and Telecommunication Systems 2001. Proceedings. Ninth International Symposium on , 15-18 Aug. 2001  
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[Abstract] [PDF Full-Text (912KB)] IEEE CNF

### 4 Optimizing file availability in a secure serverless distributed file system

*Douceur, J.R.; Wattenhofer, R.P.;*  
Reliable Distributed Systems, 2001. Proceedings. 20th IEEE Symposium on , 2 Oct. 2001  
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